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The National Women's Health Information Center

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Frequently Asked Questions about Alzheimer's Disease

What is Alzheimer's disease?

Alzheimer's disease (AD) is the most common cause of *dementia* in older people. Dementia is a brain disorder that makes it hard for a person to carry out normal daily activities. Symptoms of dementia include changes in memory, personality, and behavior.

There are other conditions besides AD that can cause dementia. For example, small strokes or changes in the brain's blood supply can cause *multi-infarct* or *vascular* dementia. Some causes of dementia are reversible, such as drug reactions, *dehydration*, and thyroid problems.

AD affects the parts of the brain that control thought, memory, and language. It is a slow disease that starts with mild memory problems and leads to severe brain damage. People with AD lose their abilities at different rates. AD can last from 3 to 20 years or more after the onset of symptoms. It is not yet clear what causes AD and there is no known cure.

An estimated 4 million people in the U.S. suffer from AD. The disease usually begins after age 60, and the risk of AD goes up with age. However, some cases of AD occur in younger people. About one in ten persons over 65 have AD, and nearly half of those age 85 and older may have the disease. But AD is not a normal part of aging.

AD is named after Dr. Alois Alzheimer, a German doctor. In 1906, Dr. Alzheimer noticed changes in the brain tissue of a woman who had died of an unusual mental illness. He found abnormal clumps (now called neuritic plaques) and tangled bundles of fibers (now called neurofibrillary tangles). Today, these plaques and tangles in the brain are considered hallmarks of AD.

Scientists have found other changes in the brains of people with AD. There is a loss of nerve cells in areas of the brain that are vital to memory and other mental abilities. There also are lower levels of chemicals in the brain that carry complex messages back and forth among nerve cells. AD may disrupt normal thinking and memory by blocking these messages in the brain.

What causes Alzheimer's disease?

Scientists do not yet fully understand what causes AD. There probably is not one single cause, but several factors that affect each person differently. Age is the most important known risk factor for AD. The number of people with the disease doubles every 5 years beyond age 65.

Family history is another risk factor. Scientists believe that genetics may play a role in many AD cases. For example, familial AD, a rare form of AD that usually occurs between the ages of 30 and 60, can be inherited. However, in the more common form of AD that occurs later in life, no obvious family pattern is seen.

Scientists still need to learn a lot more about what causes AD. In addition to genetics, they are studying education, diet, environment, and infections to learn what role they might play in the development of this disease.

What are the symptoms of Alzheimer's disease?

AD begins slowly. At first, the only symptom may be memory problems. People with AD may have trouble remembering recent events, activities, or the names of familiar people or things. They may ask the same question over and over again. Simple math problems may become hard to solve. Such difficulties begin to interfere with jobs or other activities.

As the disease gets worse, people with AD may:

- Forget something that just happened even though they can remember events from many years ago.
- Become disoriented and get lost in once familiar places.
- Become passive and lose their initiative.
- Forget how to do simple tasks, like brushing their teeth or combing their hair.
- Not be able to think clearly.
- Have trouble talking, understanding, reading, and writing.
- Stop bathing regularly or eating regular meals.
- Have sudden, unpredictable mood changes.
- Become suspicious and paranoid about other people's intentions and behavior.
- Become confused, anxious or aggressive. Some may become violent or angry, while others may be docile or helpless.
- Wander away from home.

Eventually, persons with AD need total care.

The behavioral problems in AD are not something the person can control. They result from the brain damage that worsens over time.

How is Alzheimer's disease diagnosed?

An early, accurate diagnosis of AD helps persons with AD and their families plan for the future. It gives them time to discuss care options while the patient can still take part in making decisions. Early diagnosis also offers the best chance to treat the symptoms of the disease.

Today, the only definite way to diagnose AD is to find out whether there are plaques and tangles in brain tissue. To look at brain tissue, doctors must wait until they do an *autopsy*, which is an exam of the body done after a person dies. Therefore, doctors must make a diagnosis of "possible" or "probable" AD. Finding new and better ways to diagnose early AD is one area of current research.

At specialized centers, doctors can diagnose AD correctly up to 90 percent of the time. Doctors use several tools to diagnose probable AD:

- A complete medical history that includes information about the person's general health, past medical problems, and any difficulties the person has carrying out daily activities. The doctor may want to speak with the person's family and friends to get more information.
- Tests of blood, urine, or spinal fluid to look for other possible causes of the symptoms.
- Tests of memory, problem solving, attention, counting, and language.
- Brain scans that allow the doctor to look at a picture of the brain to see if anything does not look normal. Types of brain scans include *computerized tomography* (CT), *magnetic resonance imaging* (MRI), and *positron emission tomography* (PET) scans.

Information from the medical history and from test results helps the doctor rule out other possible causes of the person's symptoms. For example, thyroid problems, drug reactions, depression, brain tumors, and blood vessel disease in the brain can cause AD-like symptoms. Some of these other conditions can be treated successfully.

Recently, scientists have focused on a type of memory change called mild cognitive impairment (MCI). MCI is different from both AD and normal age-related memory change. People with MCI have ongoing memory problems but do not have other losses like confusion, attention problems, and difficulty with language. Researchers are studying MCI to learn whether early diagnosis and treatment might prevent or slow further memory loss, including the development of AD.

How is Alzheimer's disease treated?

No treatment can stop AD. However, the Food and Drug Administration (FDA) has approved several drugs that may help some people in the early and middle stages of the disease. These drugs include tacrine (Cognex), donepezil (Aricept), rivastigmine (Exelon), and galantamine (Reminyl). Because of side effects, tacrine is rarely used today.

These drugs are *cholinesterase* inhibitors that slow the breakdown of *acetylcholine* in the brain. Acetylcholine is a chemical in the brain that carries messages between nerve cells. These drugs may help some people with AD with memory and thinking.

Other kinds of medicines are used to help control behavioral symptoms of AD such as sleeplessness, agitation, wandering, anxiety, and depression. Treating these symptoms often makes persons with AD more comfortable and makes their care easier for caregivers. Drugs used include *antidepressants*, *antipsychotics*, and *anxiolytics*.

Nondrug treatments include assuring that the person with AD has a healthy diet, exercise, social activities, regular medical care, and a safe environment. The use of memory aids, such as calendars, lists, and written directions, can be helpful for people in the earlier stages of AD. Caregivers can learn behavioral management methods to help cope with problem behaviors.

What research is being done on Alzheimer's disease?

Scientists have come a long way in their understanding of AD. These advances are the foundation for the National Institutes of Health (NIH) Alzheimer's Disease Prevention Initiative, which is designed to:

- Understand why AD occurs and who is at greatest risk of developing it.
- Improve the accuracy of diagnosis and the ability to identify those at risk.
- Discover, develop, and test new treatments.
- Find treatments for behavioral problems in persons with AD.

Developing new treatments for AD is an active area of research. Scientists are testing a number of drugs to see if they prevent AD, slow the disease, or help reduce behavioral symptoms.

- *Anti-inflammatory* drugs (NSAIDs). There is evidence that *inflammation* in the brain may contribute to AD damage. Scientists are studying anti-inflammatory drugs to see if they might help slow the progression of AD. Some research has shown that people who take NSAIDs (such as ibuprofen and naproxen) regularly for arthritis and other conditions are less likely to get AD.
- *Vitamin E*. Research has shown that vitamin E slows the progress of some AD symptoms by about 7 months. Scientists now are studying vitamin E to learn whether it can prevent or delay AD in persons with mild cognitive impairment.
- *Ginkgo biloba*. Recent research suggests that ginkgo biloba may be of some help in treating AD symptoms. There is no evidence that ginkgo will cure or prevent AD. Scientists now are trying to find out whether ginkgo biloba can delay or prevent dementia in older people.
- *Estrogen*. Research also is under way to see if the hormone estrogen reduces the risk of AD or slows the disease. Studies completed to date have shown that estrogen does not seem to help people who already have AD, but some research suggests that estrogen may help prevent AD.

Other drugs currently being tested in humans include *statins* (*cholesterol*-lowering drugs) and certain B vitamins (*folic acid*, B6 and B12) that reduce *homocysteine* in the blood. A recent animal study found that the hormone *testosterone* may have a role in preventing AD.

People with AD who want to help scientists test experimental drugs may be able to take part in clinical trials. Clinical trials are studies to find out whether a new treatment is both safe and effective. To find out more about these studies, contact the Alzheimer's Disease Education and Referral Center (ADEAR) listed below.

Can I prevent Alzheimer's disease by taking vitamins or herbal remedies?

Researchers are studying ways to prevent Alzheimer's disease. Vitamins including vitamin E and several of the B vitamins may prove to be helpful in preventing AD. A healthy, varied diet with lots of fruits, vegetables, and whole grains is a good place to start to get vitamins and other nutrients. However, many older people do not get enough vitamins and other nutrients in their diets, or their bodies are less able to use them.

Ask your health care provider about taking multivitamins or other vitamin supplements or herbal remedies such as ginkgo. Remember that even seemingly harmless vitamins and other over-the-counter remedies can have side effects or interact with other medicines.

How do family members cope when caring for someone with Alzheimer's?

Most often, spouses or other family members provide day-to-day care for people with AD. People with AD usually need more and more care as the disease worsens. Taking care of a person with Alzheimer's disease can be very hard. It can affect your family life, your job, your finances, and your physical and mental health.

There are many resources for caregivers to get help and support. The Alzheimer's Association has chapters across the country that offer educational programs and support groups for caregivers and family members of people with AD. Other resources you may find helpful include the Caregiver Guide available from ADEAR and the Eldercare Locator service provided by the Administration on Aging (see below).

For more information...

For more information, call the National Women's Health Information Center at (800) 994-9662 or contact the following organizations.

National Institute of Neurological Disorders and Stroke

Phone Number(s): (800) 352-9424

Internet Address: <http://www.ninds.nih.gov>

Alzheimer's Disease Education and Referral Center

Phone Number(s): (800) 438-4380

Internet Address: <http://www.alzheimers.org>

Alzheimer's Association

Phone Number(s): (800) 272-3900

Internet Address: <http://www.alz.org>

National Institute on Aging

Phone Number(s): (800) 222-2225

Internet Address: <http://www.nih.gov/nia>

American Association of Retired Persons

Phone Number(s): (800) 424-3410

Internet Address: <http://www.aarp.org>

The information in this FAQ was adapted primarily from the Alzheimer's Disease Fact Sheet and other publications prepared by the National Institute on Aging, National Institutes of Health.

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*This FAQ has been reviewed by Susan G. Kornstein, M.D., of Virginia Commonwealth University.
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